ABSTRACT

Methods, apparatuses, and systems relating to image guided interventions on dynamic tissue. One embodiment is a method that includes creating a dataset that includes images, one of the images depicting a non-tissue internal reference marker, being linked to non-tissue internal reference marker positional information, and being at least 2-dimensional. Another embodiment is a method that includes receiving a position of an instrument reference marker coupled to an instrument; transforming the position into image space using a position of a non-tissue internal reference marker implanted in a patient; and superimposing a representation of the instrument on an image in which the non-tissue internal reference marker appears. Computer readable media that include machine readable instructions for carrying out the steps of the disclosed methods. Apparatuses, such as integrated circuits, configured to carry out the steps of the disclosed methods. Systems that include devices configured to carry out steps of the disclosed methods.

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